



AP35943 (074779.0105)

PATENT

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Applicant : Zhang et al.
Serial. No : 10/771,680 Examiner: Not Yet Assigned
Filed : February 3, 2004 Group Art Unit: 1641
For : ISG15-CONJUGATED PROTEINS

INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. § 1.97(b)

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52,217
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February 18, 2005
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MS AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to 37 C.F.R. §§ 1.56 and 1.97(b), applicant brings to the attention of the Examiner the documents listed on the attached PTO 1449 and respectfully requests that the listed documents be considered by the Examiner and made of record in the above-captioned application.

This Information Disclosure Statement is being filed, applicant believes, before the mailing date of a first Office Action on the merits for the above-referenced application. Therefore, applicant does not believe that any fee is due in connection with the submission of this paper. Copies of the listed documents are attached.

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This submission does not represent that a search has been made or that no better art exists and does not constitute an admission that each or all of the listed documents are material or constitute "prior art." If the Examiner applies any of the documents as prior art against any claim in the application and applicant determines that the cited document(s) do not constitute "prior art" under United States law, applicant reserves the right to present to the Office the relevant facts and law regarding the appropriate status of such documents.

Applicant further reserves the right to take appropriate action to establish the patentability of the disclosed invention over the listed documents, should one or more of the documents be applied against the claims of the present application.

Applicant does not believe that any fee is required in connection with the submission of this document. However, should any fee be required, or if any overpayment has been made, the Commissioner is hereby authorized to charge any fees, or credit or any overpayments made, to Deposit Account 02-4377. Duplicate copies of this sheet are enclosed.

Respectfully submitted,

BAKER BOTTS L.L.P.

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U.S. PATENT DOCUMENTS

*Ex am. Init.	Document No.	Date	Name	Class	Subclass	Filing Date if Appropriate

FOREIGN PATENT DOCUMENTS

Document No.	Date	Country	Class	SubClass	<u>Translator</u> Yes No

OTHER DOCUMENTS (including Author, Title Date, Pertinent Pages, Etc.)

1.	Aman, P., and von Gabain, A., 1990, "An Epstein-Barr virus immortalization associated gene segment interferes specifically with the IFN-induced anti-proliferative response in human B-lymphoid cell lines," EMBO J. 9, 147-152.
2.	Billard, C., Sigaux, F., Castaigne, S., Valensi, F., Flandrin, G., Degos, L., Falcoff, E., and Aguet, M., 1986, "Treatment of hairy cell leukemia with recombinant alpha interferon: II. In vivo down-regulation of alpha interferon receptors on tumor cells," Blood 67, 821-826.
3.	Carpenter G. and Ji Q., 1999, "Phospholipase C-gamma as a signal-transducing element," Exp Cell Res. 253:15-24.
4.	Ciechanover A. et al., 2000, "Ubiquitin-mediated proteolysis: biological regulation via destruction," Bioessays 22:442-51.

NY02:512259.3

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5.	Coates, A.S., and Crawford, M., 1977, "Growth of human melanoma in nude mice: suppression by T-lymphocytes from the tumor donor: brief communication," J. Natl. Cancer Inst. 59, 1325-1329.
6.	Colamonici, O., Domanski, P., Platanias, L.C., and Diaz, M.O., 1992, "Correlation between interferon (IFN) alpha resistance and deletion of the IFN alpha/beta genes in acute leukemia cell lines suggests selection against the IFN system," Blood 80, 744-749.
7.	Darnell, J.E., Jr., Kerr, I.M., and Stark, G.R., 1994, "Jak-STAT pathways and transcriptional activation in response to IFNs and other extracellular signaling proteins," Science 264, 1415-1421.
8.	D'Cunha J. et al., 1996, "Immunoregulatory properties of ISG15, an interferon-induced cytokine," Proc. Natl. Acad. Sci. U. S. A. 93:211-5.
9.	D'Cunha J. et al., 1996, "In vitro and in vivo secretion of human ISG15, an IFN-induced immunomodulatory cytokine," J Immunol. 157:4100-8.
10.	DeMali K.A. et al., 1997, Platelet-derived growth factor-dependent cellular transformation requires either phospholipase Cgamma or phosphatidylinositol 3 kinase," J. Biol. Chem. 272:9011-8.
11.	Der S.D. et al., 1998, "Identification of genes differentially regulated by interferon alpha, beta, or gamma using oligonucleotide arrays," Proc Natl Acad Sci U S A. 95:15623-8.
12.	Dron, M., and Tovey, M.G., 1993, "Interferon-resistant Daudi cells are deficient in interferon-alpha-induced ISGF3 alpha activation, but remain sensitive to the interferon-alpha-induced increase in ISGF3 gamma content," J. Interferon Cytokine Res. 13, 377-383
13.	Durbin J.E. et al., 1996, Targeted disruption of the mouse Stat1 gene results in compromised innate immunity to viral disease," Cell 84:443-50.

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14.	Eilers, A., Seegert, D., Schindler, C., Baccarini, M., and Decker, T., 1993, "The response of gamma interferon activation factor is under developmental control in cells of the macrophage lineage," Mol. Cell. Biol. 13, 3245-3254.
15.	English J.M. and Cobb M.H., 2002, "Pharmacological inhibitors of MAPK pathways," Trends Pharmacol. Sci. 23:40-5.
16.	Farrell P.J. et al., 1979, "Accumulation of an mRNA and protein in interferon-treated Ehrlich ascites tumour cells," Nature 279:523-5.
17.	Gao, P.Q., Sims, S.H., Chang, D. C., and Deisseroth, A.B., 1993, "Interferon-gamma priming effects in the activation and deactivation of ISGF3 in K562 cells," J. Biol. Chem. 268, 12380-12387.
18.	Gutch, M.J., Daly, C., and Reich, N.C., 1992, "Tyrosine phosphorylation is required for activation of an alpha interferon-stimulated transcription factor," Proc. Natl. Acad. Sci. USA 89, 11411-11415.
19.	Haas A.L. et al., 1987, Interferon induces a 15-kilodalton protein exhibiting marked homology to ubiquitin," J. Biol. Chem. 262:11315-23.
20.	Hamerman J.A. et al., 2002, "Serpin 2a is induced in activated macrophages and conjugates to a ubiquitin homolog," J. Immunol.168:2415-23.
21.	Hansen T.R. et al., 1999, "Mechanism of action of interferon-tau in the uterus during early pregnancy," J. Reprod. Fertil. Suppl. 54:329-39.
22.	Hertzog, P.J., Johns, T.G., Callister, K.A., Dinatale, A., and Linnane, A.W., 1990, "Comparative antiproliferative and receptor binding activities of interferons alpha and beta on lymphoblastoid and melanoma cells," Biochem. Mol. Biol. Int. 22, 1095-1102

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23.	Heyman, M., Granders, D., Brondum-Nielsen, K., Cederblad, B., Liu, Y., Xu, B., and Einhorn, S., 1994, "Interferon system defects in malignant T-cells," Leukemia (Baltimore) 8, 425-434.
24.	Hochstrasser M., 2000, "Biochemistry All in the ubiquitin family," Science 289:563-4.
25.	Howe A.K. et al., 2002, Anchorage-dependent ERK signaling--mechanisms and consequences," Curr. Opin. Genet. Dev. 12:30-5.
26.	Improta, T., Pine, R., and Pfeffer, L.M., 1992, "Interferon-gamma potentiates the antiviral activity and the expression of interferon-stimulated genes induced by interferon-alpha in U937 cells," J. Interferon Cytokine Res. 12, 87-94
27.	Jentsch S. and Pyrowolakis G., 2000, Ubiquitin and its kin: how close are the family ties?," Trends Cell Biol 10:335-42.
28.	Ji Q.S. et al., 1998, Epidermal growth factor signaling and mitogenesis in Plcg1 null mouse embryonic fibroblasts," Mol Biol Cell. 9:749-57.
29.	Johns, T.G., Mackay, I.R., Callister, K.A., Hertzog, P.J., Devenish, R.J., and Linnane, A.W. 1992, "Antiproliferative potencies of interferons on melanoma cell lines and xenografts: higher efficacy of interferon beta," J. Natl. Cancer Inst. 84, 1185-1190.
30.	Kanda, K., Decker, T., Aman, P., Wahlstrom, M., von Gabain, A., and Kallin, B. 1992, "The EBNA2-related resistance towards alpha interferon (IFN-alpha) in Burkitt's lymphoma cells effects induction of IFN-induced genes but not the activation of transcription factor ISGF-3," Mol. Cell. Biol. 12,4930-4936.
31.	Kang D. et al., 2001, "Cloning and characterization of human ubiquitin-processing protease-43 from terminally differentiated human melanoma cells using a rapid subtraction hybridization protocol RaSH," Gene 267:233-42.

NY02:512259.3

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32.	Kolla, V., Lindner, D.J., Weihua, X., Borden, E.C., and Kalvakolanu, D.V. 1996, "Modulation of interferon (IFN)-inducible gene expression by retinoic acid. Up-regulation of STAT1 protein in IFN-unresponsive cells," J. Biol. Chem. 271, 10508-10514.
33.	Knight E Jr, and Cordova B., 1991, "IFN-induced 15-kDa protein is released from human lymphocytes and monocytes," J. Immunol. 146:2280-4.
34.	Lengyel, P., 1993, "Tumor-suppressor genes: news about the interferon connection," Proc. Natl. Acad. Sci. USA 90, 5893-5895.
35.	Levy, D. E., Kessler, D. S., Pine, R., and Darnell, J. E., Jr., 1989, "Cytoplasmic activation of ISGF3, the positive regulator of interferon-alpha-stimulated transcription, reconstituted in vitro," Genes Dev. 3, 1362-1371.
36.	Li J et al., "Novel NEMO/IkappaB kinase and NF-kappa B target genes at the pre-B to immature B cell transition," (2001) J. Biol. Chem. 276:18579-90.
37.	Li X.L. et al., "RNase-L-dependent destabilization of interferon-induced mRNAs. A role for the 2-5A system in attenuation of the interferon response," (2000) J. Biol. Chem. 275:8880-8.
38.	Liu L.Q. et al., "A novel ubiquitin-specific protease, UBP43, cloned from leukemia fusion protein AML1-ETO-expressing mice, functions in hematopoietic cell differentiation," (1999) Mol. Cell Biol. 19:3029-38.
39.	Loeb K.R. and Haas A.L., "The interferon-inducible 15-kDa ubiquitin homolog conjugates to intracellular proteins" (1992) J. Biol. Chem. 267:7806-13.
40.	Luttrell, D.K., Lee, A., Lansing, T.J., Crosby, R.M., Jung, K.D., Willard, D., Luther, M., Rodriguez, M., Bennan, J., and Gilmer, T.M. (1994), "Involvement of pp60c-src with two major signaling pathways in human breast cancer," Proc. Natl. Acad. Sci. USA 91, 83-87.

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41.	Malakhov M.P. et al., "High-throughput immunoblotting. Ubiquitin-like protein ISG15 modifies key regulators of signal transduction," (2003) J. Biol. Chem. 278:16608-13.
42.	Malakhov M.P. et al., "UBP43 (USP18) specifically removes ISG15 from conjugated proteins," (2002) J. Biol. Chem. 277:9976-81.
43.	Malakhova O. et al., "Lipopolysaccharide activates the expression of ISG15-specific protease UBP43 via interferon regulatory factor 3," (2002) J. Biol. Chem. 277:14703-11.
44.	Malakhova O.A. et al., "Protein ISGylation modulates the JAK-STAT signaling pathway," (2003) Genes Dev. 17:455-60.
45.	McLaughlin P.M. et al., "The ubiquitin-activating enzyme E1-like protein in lung cancer cell lines," (2000) Int. J. Cancer 85:871-6.
46.	Meraz M.A., "Targeted disruption of the Stat1 gene in mice reveals unexpected physiologic specificity in the JAK-STAT signaling pathway," (1996) Cell 84:431-42.
47.	Muller, M., Briscoe, J., Laxton, C., Guschin, D., Ziemiecki, A., Silvennoinen, A., Harpur, A.G., Barbieri, G., Witthuhn, B.A., Schindler, C., Pelligrini, S., Wilks, A.F., Ihle, J.N., Stark, G.R., and Kerr, I.M. (1993), "The protein tyrosine kinase JAK1 complements defects in interferon-alpha/beta and -gamma signal transduction," Nature 366, 129-135.
48.	Muller, M., Laxton, C., Briscoe, J., Schindler, C., Improta, T., Darnell, J.E., Jr., Stark, G.R., and Kerr, I.M. (1993), "Complementation of a mutant cell line: central role of the 91 kDa polypeptide of ISGF3 in the interferon-alpha and -gamma signal transduction pathways," EMBO J. 12, 4221-4228.
49.	Narasimhan J. et al., "Conjugation of the 15-kDa interferon-induced ubiquitin homolog is distinct from that of ubiquitin," (1996) J. Biol. Chem. 271:324-30.

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50.	Payne, M.J., Ralph, S.J., De Veer, M.J., Allen, K., Linnane, A.W., and Devenish, R.J. (1994), "cDNA sequence identity for the type I interferon receptor subunit from cell lines of widely differing responsiveness to interferon," Biochem. Mol. Biol. Int. 33, 283-288.
51.	Petricoin, E., III, David, M., Fang, H., Grimley, P., Lamer, A.C., and Vande Pol, S. (1994), "Human cancer cell lines express a negative transcriptional regulator of the interferon regulatory factor family of DNA binding proteins," Mol. Cell. Biol. 14, 1477-1486.
52.	Pfeffer, L.M., and Donner, D.B. (1990), "The down-regulation of alpha-interferon receptors in human lymphoblastoid cells: relation to cellular responsiveness to the antiproliferative action of alpha-interferon," Cancer Res. 50, 2654-2659.
53.	Pickart C.M., "Mechanisms underlying ubiquitination," (2001) Annu. Rev. Biochem. 70:503-33.
54.	Piechaczyk, M., Blanchard, J.M., Marty, L., Dani, C., Panabieres, F., Sabouty, S.E., Fort, P., and Jeanteur, P. (1984), "Post-transcriptional regulation of glyceraldehyde-3-phosphate-dehydrogenase gene expression in rat tissues," Nucleic Acids Res. 12, 6951-6964.
55.	Platanias, L.C., Uddin, S., and Colamonici, A.R. (1994), "Tyrosine phosphorylation of the alpha and beta subunits of the type I interferon receptor. Interferon-beta selectively induces tyrosine phosphorylation of an alpha subunit-associated protein," J. Biol. Chem. 269, 17761-17764.
56.	Platanias, L.C., and Colamonici, A.R. (1992), "Interferon alpha induces rapid tyrosine phosphorylation of the alpha subunit of its receptor," J. Biol. Chem. 267, 24053-24057.
57.	Qureshi, S.A., Salditt-Georgieff, M., and Darnell, J.E., Jr.(1995), "Tyrosine-phosphorylated Stat1 and Stat2 plus a 48-kDa protein all contact DNA in forming interferon-stimulated-gene factor 3," Proc. Natl. Acad. Sci. USA 92, 3829-3833.

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58.	Ralph, S.J., Wines, B.D., Payne, M.J., Grubb, D., Hatzinisiriou, I., and Devenish, R.J. (1995), "Resistance of melanoma cell lines to interferons correlates with reduction of IFN-induced tyrosine phosphorylation. Induction of the anti-viral state by IFN is prevented by tyrosine kinase inhibitors," J. Immunol. 154, 2248-2256.
59.	Rebecchi M.J. and Pentyla S.N., "Structure, function, and control of phosphoinositide-specific phospholipase C," (2000) Physiol. Rev. 80:1291-335.
60.	Rhee S.G., "Regulation of phosphoinositide-specific phospholipase C," (2001) Annu. Rev. Biochem. 70:281-312.
61.	Ritchie K.J. et al., "Dysregulation of protein modification by ISG15 results in brain cell injury," (2002) Genes Dev. 16:2207-12.
62.	Rodig S.J. et al., "Disruption of the Jak1 gene demonstrates obligatory and nonredundant roles of the Jaks in cytokine-induced biologic responses," (1998) Cell 93:373-83.
63.	Sanchez, E.R., Meshinchi, S., Tienrungroj, W., Schlesinger, M.J., Toft, D.O., and Pratt, W.B. (1987), "Relationship of the 90-kDa murine heat shock protein to the untransformed and transformed states of the L cell glucocorticoid receptor," J Biol. Chem. 262, 6986-6991.
64.	Schiller, J.H., Willson, J.K.H., Bittner, G., Wolberg, W.H., Hawkins, M.J., and Borden, E.C. (1986), "Antiproliferative effects of interferons on human melanoma cells in the human tumor colony-forming assay," J. Interferon Cytokine Res. 6, 615-625
65.	Schindler, C., Shuai, K., Prezioso, V.R., and Darnell, J.E., Jr. (1992), "Interferon-dependent tyrosine phosphorylation of a latent cytoplasmic transcription factor," Science 257, 809-815.
66.	Schwer H. et al., "Cloning and characterization of a novel human ubiquitin-specific protease, a homologue of murine UBP43 (Usp18)," (2000) Genomics 65:44-52.

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67.	Shuai, K. (1994), "Interferon-activated signal transduction to the nucleus," Curr. Opin. Cell. Biol. 6, 253-259.
68.	Uze, G., Lutfalla, G., and Gresser, I. (1990), "Genetic transfer of a functional human interferon alpha receptor into mouse cells: cloning and expression of its cDNA," Cell 60, 225-234.
69.	Velazquez L, Fellous M, Stark GR, Pellegrini S. (1992), "A protein tyrosine kinase in the interferon alpha/beta signaling pathway," Cell 70, 313-322.
70.	Wilks, A.F., and Harpur, A.G., (1994), "Cytokine signal transduction and the JAK family of protein tyrosine kinases," Bioessays 16, 313-320.
71.	Xu, B., Grandner, D., Sangfelt, O., and Einhorn, S., (1994), "Primary leukemia cells resistant to alpha-interferon in vitro are defective in the activation of the DNA-binding factor interferon-stimulated gene factor 3," Blood 84, 1942-1949.
72.	Yan et al., "Protein modification by ISG15 regulates the JAK-STAT signaling pathway" (2002) American Society of Hematology (abstract).
73.	Varshavsky A., (1997) "The ubiquitin system," Trends Biochem. Sci. 22:383-7.
74.	Yuan W. and Krug R.M., (2001) "Influenza B virus NS1 protein inhibits conjugation of the interferon (IFN)-induced ubiquitin-like ISG15 protein," EMBO J. 20:362-71.
75.	Zhang X. et al., (1999) "Molecular responses of macrophages to porcine reproductive and respiratory syndrome virus infection," Virology 262:152-62.

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